

CLAIMS

[CLAIM 1]

A method for manufacturing a circuit board comprising:
5 attaching a mask film, where a squeegee cleaning part has been formed at a predetermined position, to a substrate; then
 forming a through-hole; and
 filling conductive paste into the through-hole by using a squeezing method.

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[CLAIM 2]

A method for manufacturing a circuit board comprising:
 attaching a mask film to both sides of a substrate; then
 forming a through-hole; and
15 filling conductive paste into the through-hole by using a squeezing method,
 wherein a squeegee cleaning part is formed at a predetermined position of the mask film before the filling of the conductive paste.

20 [CLAIM 3]

The method for manufacturing a circuit board of claim 1 or claim 2,
 wherein the predetermined position is a position of an unnecessary part of a product area or an outside of the product area of a paste-filling area of the mask film and within a printing range.

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[CLAIM 4]

The method for manufacturing a circuit board of claim 1,

wherein the squeegee cleaning part is hound's-tooth through-holes formed at the mask film.

[CLAIM 5]

5 The method for manufacturing a circuit board of claim 1 or claim 2, wherein the squeegee cleaning part is a no-penetrated linear groove formed at a paste-filling area of the mask film.

[CLAIM 6]

10 The method for manufacturing a circuit board of claim 5, wherein the squeegee cleaning part is a plurality of the no-penetrated linear groove.

[CLAIM 7]

15 The method for manufacturing a circuit board of claim 1 or claim 2, wherein the squeegee cleaning part of the mask film has a swollen portion.

[CLAIM 8]

20 The method for manufacturing a circuit board of claim 5, wherein the no-penetrated groove of the mask film is processed by using a cutting edge.

[CLAIM 9]

25 The method for manufacturing a circuit board of claim 8, wherein the cutting edge is a round blade.

[CLAIM 10]

The method for manufacturing a circuit board of claim 9,
wherein the round blade is fixed to a blade-fixing section having
vertically sliding function with a certain load so as not to rotate.

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[CLAIM 11]

The method for manufacturing a circuit board of claim 10,
wherein a depth of the groove and a height of a swollen portion of the
squeegee cleaning part are set by adjusting an edge angle of the round blade
10 and the load.

[CLAIM 12]

The method for manufacturing a circuit board of claim 7,
wherein the swollen portion is not lower than 3 μ m.

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[CLAIM 13]

The method for manufacturing a circuit board of claim 1 or claim 2,
wherein the substrate is a prepreg where resin material, whose main
body is thermosetting resin, is impregnated into a fabric or a nonwoven fabric,
20 thereby forming B-stage.

[CLAIM 14]

The method for manufacturing a circuit board of claim 13,
wherein aramid fabric is a main body of the fabric or the nonwoven
25 fabric.

[CLAIM 15]

The method for manufacturing a circuit board of claim 13,
wherein glass fiber is a main body of the fabric or the nonwoven fabric.

[CLAIM 16]

5 The method for manufacturing a circuit board of claim 1 or claim 2,
 wherein the filling of the conductive paste into the through-hole by using
 the squeezing method comprises:
 filling the conductive paste into the through-hole by reciprocating a
 squeegee on the circuit board; and
10 10 cleaning an edge of the squeegee by using the squeegee cleaning
 part.

[CLAIM 17]

An apparatus for manufacturing a circuit board comprising:
15 a transporting means for transporting a substrate;
 supplying means, which are placed above and below the transporting
 means, for supplying mask films;
 a laminate roll; and
 a groove processing section, which is placed behind the laminate roll and
20 20 above the transporting means, for processing a groove at the mask film.

[CLAIM 18]

The apparatus for manufacturing a circuit board of claim 17,
 wherein the groove processing section is formed of a blade-fixing section
25 25 including a blade with a certain range of an edge angle and a
 blade-fixing-section-installing unit having a sliding section,
 wherein the blade-fixing section is capable of sliding up and down at the

sliding section of the blade-fixing-section-installing unit.

[CLAIM 19]

The apparatus for manufacturing a circuit board of claim 18,
5 wherein the blade is a round blade, and fixed to the blade-fixing section
so as not to rotate.

[CLAIM 20]

The apparatus for manufacturing a circuit board of claim 17,
10 wherein the groove processing section placed above the transporting
means is capable of being positioned and fixed.

[CLAIM 21]

The apparatus for manufacturing a circuit board of claim 17, further
15 comprising:

 a backing roll directly under the groove processing section and under the
transporting means.

[CLAIM 22]

20 The apparatus for manufacturing a circuit board of claim 18,
wherein the edge angle of the blade ranges 30-90°.